SANYO

Digital Video Recorder with Built-in Multiplexer

DSR-3716P 16-channel PAL
DSR-3709P 9-channel PAL

DIGITAL NETWORK SOLUTIONS

- An HDD recorder with a complete 16 / 9-ch multiplexer
- A clear picture with horizontal resolution of more than 520 TV lines
- Simultaneous recording and playback at 50 IPS.
- Live picture monitoring at 800 (50 x 16) IPS and 450 (50 x 9) IPS for DSR-3716P and DSR-3709P respectively
- Built-in SSP controller with camera telemetry control
- Networking capability

Made in Japan

The product introduced here is manufactured in Japan utilizing advanced technologies and quality control.

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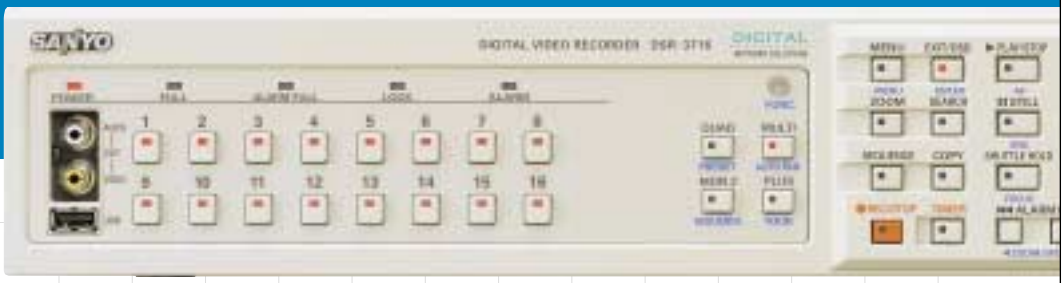
DIGITAL NETWORK SOLUTIONS

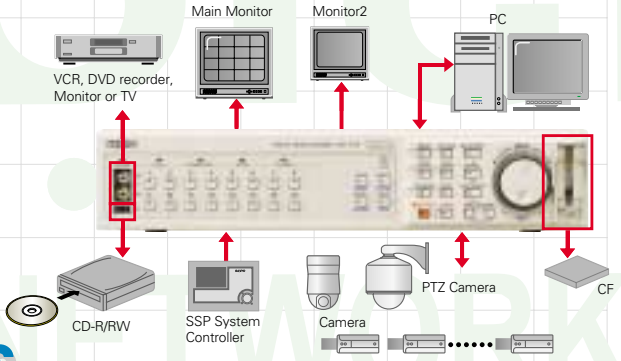


Simultaneous recording/playback with high picture quality of more than 520 TV lines at 50 IPS, plus availability of huge 300 GB HDD. Multiple screen display that is updated at 800 IPS*. Also features built-in LAN terminal to add controls over a network.

*DSR-3716P

An All-in-one Unit for a System Hub

Capable of processing analogue signals, SSP signals and network signals (through the LAN terminal), the DSR-3716P / DSR-3709P functions as a system hub that connects different devices such as cameras and monitors. It offers added benefits of 520 TVL high picture quality, real time (50 IPS/screen) multiple screen monitoring, and USB terminals to output data to a CD-R/RW disc. The units also include a telemetry function that allows them to control cameras that support SSP via a coaxial cable. These brand new units cover all aspects of the expanded needs of surveillance equipment.



More than 520 TV Lines
Real time multiple screen monitoring

High Picture Quality of 520 TV Line Horizontal Resolution

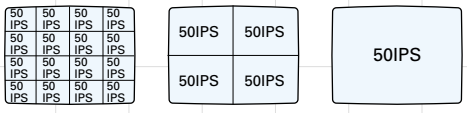
The DSR-3716P / DSR-3709P supports simultaneous recording / playback in the Motion-JPEG video compression standard, a recording good enough for establishing cases against offenders. Naturally, the recording is free from smudges, vertical shifts, and jitters. With a horizontal resolution of more than 520 TV lines and an S/N ratio of more than 50dB, the surveillance video recording is clearer than ever.

Simultaneous Recording and Playback at 50 IPS

The simultaneous recording and playback function makes it possible for the user to review recorded images without interrupting the recording in progress.

Full-motion, Multiple Screen Display of Live Video Images

Multiple live video images can be viewed simultaneously in 16, 9, or 4 split-screen display at the speed of 50 IPS/channel. Full screen display is also available. Select the desired display mode without worrying about the update speed.



Audio Recording Available

Audio recording is available for recording speeds from 50 IPS to 1 IPS. (Audio input must be a single channel.)

Supports up to 540GB HDD

The unit has two HDD bays, each supporting up to 540GB HDD to make the unit the right choice in today's trend for bigger drives. Select a secondary drive that suits the needs among the optional drives. Selecting a drive of the same capacity will allow the use of the mirroring function for data back-up.

For the latest available range of optional drives, contact the place of purchase.

***Mirror Recording**

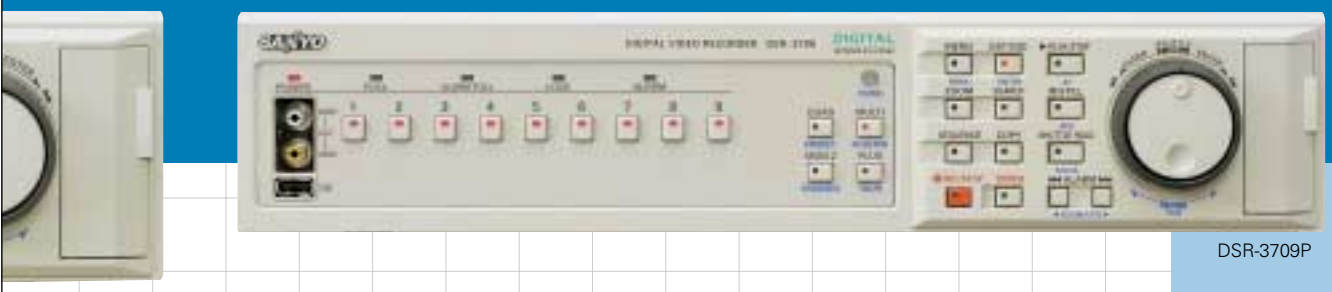
DSR-3716P / DSR-3709P both come with two HDD bays. With two HDD's of the same capacity installed, it is possible to record the same video on both of them, thus allowing for a backup.

Five Different Picture Qualities and 27 Recording Speeds Enable Flexible Settings

The picture quality is selectable from BASIC, NORMAL, ENHANCED, FINE and SUPER FINE. Together with the 27 different recording speeds, the user can select the most suitable recording mode for each situation.

Five Different Search Functions

DSR-3716P / DSR-3709P features five different search functions — Time/Date Search, Alarm Search, Alarm Thumbnail Search, Archive Area Search and Motion Detection Search. Since all data is recorded on a HDD, the target image is brought up instantly despite the disk's ability to store a large amount of data.



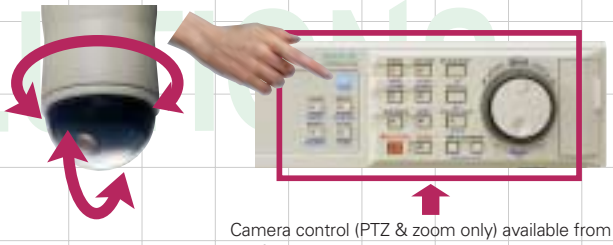
DSR-3709P

A DVR with Superior System Expansion Capability Supporting Various Media and Network Connection

Camera Telemetry Control

The buttons on the DSR-3716P / DSR-3709P front panel allow the user to control PTZ / zoom cameras. The unit transmits SSP* signals by overlaying them on to the video signal through a coaxial cable. This makes it possible to control cameras that support coaxial SSP transmission without any additional device other than a video cable not only from the front panel, but also from a SANYO controller or over a network. In addition, BBV and PELCO cameras can also be controlled if they support coaxial signal transmission.

* SSP (SANYO Security Serial Protocol) is a communication protocol for security devices proposed by SANYO.



Camera control (PTZ & zoom only) available from the front panel

Multiple Backup Methods Depending on Data Size

CD-R/RW

The VA-EXD1 W CD-Writer was designed specifically for DSR-3716P / DSR-3709P for backing up data on CD-R/RW discs. It has been engineered to assure each operation with the main unit, offering secure storage of important video and audio data.

* There are two USB terminals on the main unit, one each on the front and rear panels, but they cannot be used simultaneously.

CompactFlash or Microdrive

DSR-3716P / DSR-3709P comes with a CF Type II expansion slot. It allows the user to export video data to a CompactFlash or Microdrive, and provides an easy way to store data or transfer it to a PC. Downloading and uploading of setup menus by use of a CF card offer an easy option for setting up additional DSR-3716P / DSR-3709P recorders.

Print Directly from a CF Card or a Microdrive

By using SANYO digital photo printer DVP-P1, it is possible to print images directly from a CF card or a Microdrive. SANYO cannot guarantee performance when other printers are used.

As for the recommended products, visit our website **www.sanyosecurity.com** or contact the place of purchase.

Optional accessories (sold separately)

CD-Writer
VA-EXD1 W

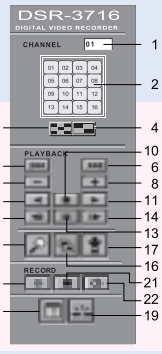
Back up important data on CD-R/RW discs with the USB connection.

Networking Capability

Remote Control by a PC

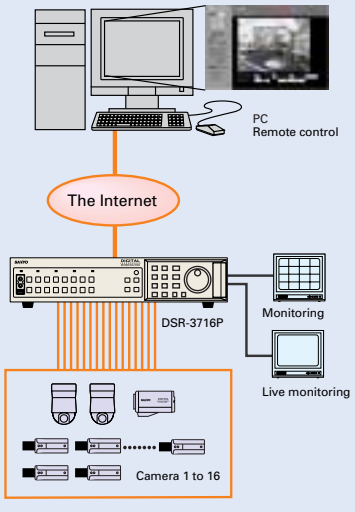
The built-in LAN terminal enables remote control of the DSR-3716P / DSR-3709P through a PC that is connected to the network (remote control is possible by using Internet Explorer Version 5.0 or higher without the need for any special software). It is also possible to monitor the live video, play back recorded pictures, control PTZ / zoom cameras, and download video/audio recordings to the PC. Added security is provided by limiting the access level depending on the user and password setup.

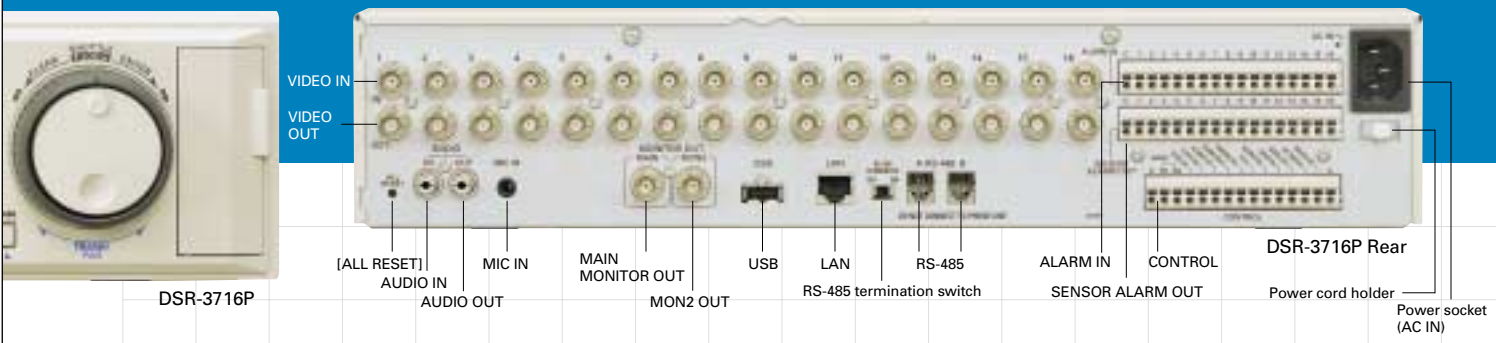
Operation panel



Camera operation panel

1. Channel number
2. Channel selection (ID1/2/3)
3. MULTIVIEW (ID1/2/3)
4. QUAD (ID1/2/3)
5. Previous event (ID2/3)
6. Next event (ID2/3)
7. Speed down (ID2/3)
8. Speed up (ID2/3)
9. Reverse playback (ID2/3)
10. Playback stop (ID2/3)
11. Playback (ID2/3)
12. Previous image (ID2/3)
13. Still (ID2/3)
14. Next image (ID2/3)
15. Search (ID2/3)
16. Copy (ID2/3)
17. Download (ID2/3)
18. Menu settings (ID3)
19. Disconnect (ID1/2/3)
20. Record (ID3)
21. Record STOP (ID3)
22. Timer (ID3)





Series Connection

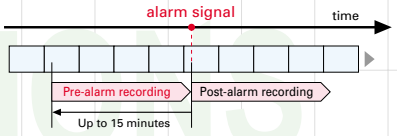
When multiple units of DSR-3716P / DSR-3709P are connected in series, the recording automatically switches to the second DVR if the master DVR runs out of storage capacity. The process continues to the third DVR and onward and enables unlimited expansion of storage capacity and recording time.

Three Recording Modes for Flawless Recording

DSR-3716P / DSR-3709P has three recording modes; Alarm, Timer, and Programme. The three modes can operate individually or in any combination.

Pre-alarm Recording

The pre-alarm recording mode allows the user to save up to 15 minutes of video prior to an alarm input, offering a great advantage when analysing the situation.



300 GB DSR-3716P / DSR-3709P Recording Time

After expansion to 300 GB (100%-usage)

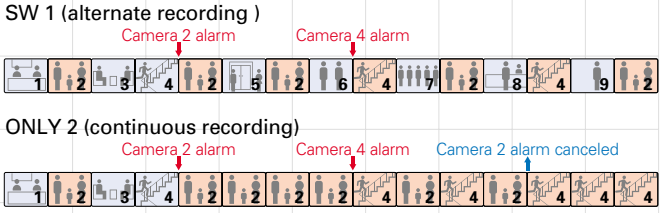
Recording Speed		Picture Quality					Audio Recording
IPS	Recording Interval (sec.)	Basic 15KB	Normal 22KB VHS (EP)	Enhanced 30KB VHS (SP)	Fine 42KB S-VHS	Super Fine 50KB S-VHS +	
		Recording Time (unit: hour)					
50.00	0.02	93	66	49	36	30	Available
25.00	0.03	187	133	99	72	61	
16.67	0.05	281	199	149	108	92	
12.50	0.07	375	266	199	145	122	
8.33	0.10	563	399	299	217	184	
6.25	0.13	751	532	399	290	245	
5.00	0.17	939	665	498	362	307	
4.17	0.20	1,126	798	598	435	368	
3.57	0.23	1,314	931	698	507	429	
3.13	0.27	1,502	1,054	798	580	491	
2.78	0.30	1,690	1,197	898	653	552	
2.50	0.33	1,878	1,330	997	725	614	
2.27	0.37	2,066	1,463	1,097	798	675	
1.92	0.43	2,441	1,729	1,297	943	798	
1.67	0.50	2,817	1,995	1,496	1,088	921	
1.47	0.60	3,193	2,261	1,696	1,233	1,043	
1.32	0.70	3,568	2,527	1,895	1,378	1,166	
1.19	0.80	3,944	2,793	2,095	1,523	1,289	
1.09	0.90	4,320	3,060	2,295	1,669	1,412	
1.00	1	4,695	3,326	2,494	1,814	1,535	
0.50	2	9,391	6,652	4,989	3,628	3,070	Not available
0.33	3	14,087	9,978	7,483	5,442	4,605	
0.25	4	18,782	13,304	9,978	7,256	6,140	
0.20	5	23,478	16,630	12,472	9,071	7,675	
0.10	10	46,956	33,261	24,945	18,142	15,351	
0.05	20	93,913	66,522	49,891	36,284	30,702	
0.03	30	140,870	99,783	74,837	54,427	46,053	

* The recording time may vary slightly depending on the complexity of the images and the presence of an audio signal.
* The recording time will change depending on the settings for the storage area, and the availability of an optional HDD. Contact the place of purchase for details on increasing the capacity by adding a HDD.

Reference: 24H = 1 day, 168H = 1 week, 720H = 1 month, 8760H = 1 year

Alarm Recording

A full range of settings for picture quality, recording speed, and audio recording are possible. Alarm recording is triggered by an alarm signal from the built-in motion sensor or an external sensor. There are two operating modes in alarm recording — alternate recording and continuous recording.



Timer Recording

The timer recording mode allows the user to set eight different settings. Different settings for each day of the week and multiple settings for the same day are possible. It is also possible to specify the start / stop time or use a different recording speed.

Programmed Recording

For each of four available programmes (P1 to P4), the user can specify particular cameras for recording. In addition, different recording speeds can be set for each programme. These programmes can also be used when making a timer recording or a pre-alarm recording.

Timer Functions

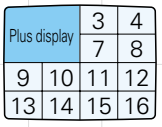
By dividing a day into four time periods T1, T2, T3, and T4, you can set up an independent setting in each time period, for each of the following functions.

(1) Motion Sensor
(2) Monitor Masking
(3) Display Interval for Full-screen Sequential Display

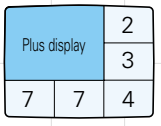
Extensive Display Options

For both live picture monitoring (during multiplex recording) and replay of pictures, the user can select from 16-screen display, 9-screen display, 4-screen display, and full-screen (1-screen) display.

Plus display



Plus display

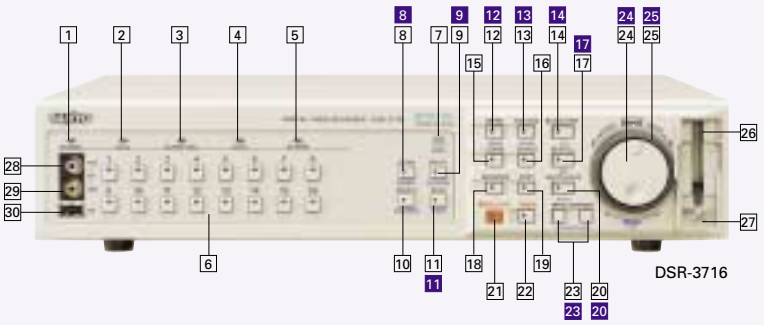


The maximum number of cameras for DSR-3709P is nine.

- Plus display
- 4-screen display
- Full-screen display
- Screen position assignment
- Monitor masking

LOCATIONS OF CONTROLS AND INDICATORS

1. POWER indicator
2. FULL indicator
3. ALARM FULL indicator
4. LOCK indicator
5. ALARM indicator
6. [CAMERA SELECT] button and indicators
7. [FUNC.] button
8. [QUAD] button / [PRESET]
9. [MULTI] button / [AUTO PAN]
10. [MON2] button / [SEQUENCE]
11. [PLUS] button / [TOUR]
12. [MENU] button / [MENU]
13. [EXIT/OSD] button / [ENTER]
14. [PLAY/STOP] button / [AF]
15. [ZOOM] button
16. [SEARCH] button
17. [STILL] button / [IRIS]
18. [SEQUENCE] button
19. [COPY] button
20. [SHUTTLE HOLD] button / [FOCUS]
21. [REC/STOP] button
22. [TIMER] button
23. [ALARM] button / [ZOOM/INFO]
24. Jog dial (inside) / [TILT]
25. Shuttle dial (outside) / [PAN]
26. CompactFlash card slot
27. [MENU RESET] button
28. Audio output terminal
29. Video output terminal
30. USB terminal



Alarm Functions

Using the built-in motion sensor and external sensors, the following alarm functions are available.

(1) Monitor Display Switching

An alarm signal causes the monitor to switch to the designated mode of display (16-, 9-, or full-screen). It also causes letters "SA" (for a video alarm) or "EA" (for an external alarm) to be displayed alternately with the camera title. The user can also set each spot monitor to switch to the image from the camera from which the alarm was triggered.

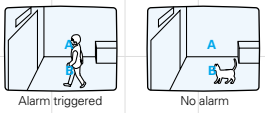
(2) Buzzer and Indicator Lamp Warnings

An alarm signal triggers a buzzer sound as well as the blinking of the camera selection indicator light for the relevant camera.

Built-in Motion Sensor

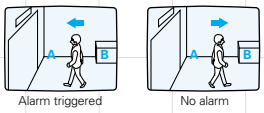
DSR-3716P / DSR-3709P comes with a built-in motion sensor. Different settings can be made for each camera image independently. The sensor can detect moving objects within the screen by picking up changes in brightness. The user can use this feature to trigger an alarm recording.

Example MODE A AND B
Disregard movements of small objects



Alarm triggered　　No alarm

Example MODE B TO A
Detecting objects moving from B to A



Alarm triggered　　No alarm

AV Output Terminal on the Front Panel

These terminal can be used for supplying signals to a consumer VCR or DVD recorder, thus enabling the use of analogue video tapes and DVD discs as recording media. When a TV monitor is connected, the same video signal as the main monitor can be supplied to it, including the menu screen.

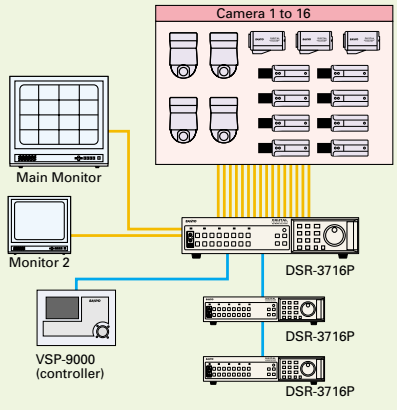
Other Features

- Duplex Recording with 1-Field Switching
- Two-level password security lock (admin / user)
- Video loss alarm
- 30-day memory back-up
- Resume function
- Disk full alarm
- On-screen mode setting, menu languages built in: English / French / German / Spanish
- Built-in time date generator
- Auto delete
- Alarm counter
- Jog Shuttle
- Forward / reverse field advance
- Automatic summer time adjustment
- Lifetime counter
- Through output of video
- Position adjustable camera titles (10-character)
- One push adjustable clock
- Push-lock terminals for easy installation

System Example

Analogue video signal　SSP signal　LAN

System Example No.1



Maximum cable length for communication, SSP signal: Up to 1200 m

SSP coaxial camera control compatible

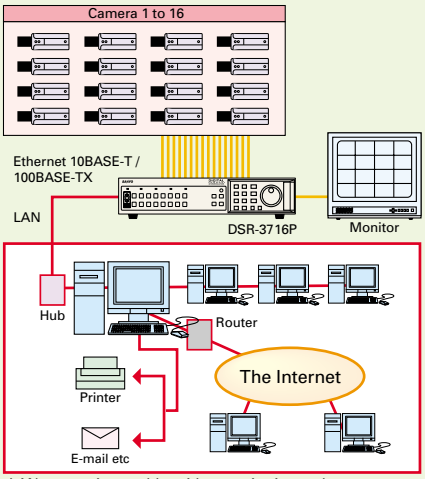
Zoom
1/4" Colour CCD DSP
High-resolution AF Zoom Camera
VCC-ZM300PA
(12 V DC / 24 V AC dual type)
VCC-ZM400P DAY NIGHT
(12 V DC / 24 V AC dual type)

Pan Tilt Zoom
1/4" Colour CCD DSP High-resolution Speed Dome Camera
VCC-9000P (24 V AC type)
VCC-9100P (24 V AC type)
DAY NIGHT

1/4" Colour CCD DSP High-resolution Speed Dome Camera
VCC-9300P (24 V AC type)
VCC-9400P (24 V AC type)
DAY NIGHT

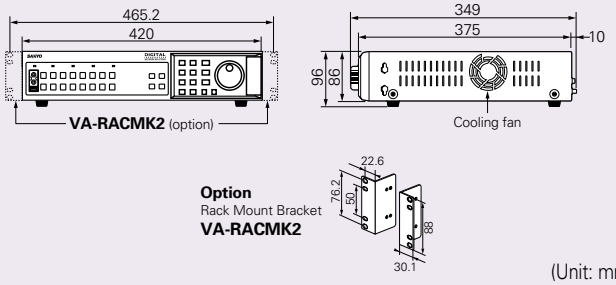
Weatherproof
1/4" Colour CCD High-resolution Weatherproof Day/Night AF Zoom Camera
VCC-XZ400P
DAY NIGHT
(12 V DC / 24 V AC dual type)

System Example No.2



LAN connection enables video monitoring and DVR setup/control from a remote location

DSR-3716P / DSR-3709P



Option
Rack Mount Bracket
VA-RACMK2

(Unit: mm)

MODEL		DSR-3716P	DSR-3709P
General	Hard disk capacity	Max HDD Capacity (Technically) per One bay 540GB	
	Picture resolution	720 x 288 (pixels)	
	Compression	M-JPEG	
	Picture quality	5 levels (Basic, Normal, Enhanced, Fine, Super Fine)	
	Recording speed	27 levels.	
	Recording area	Normal Recording Area / Alarm Recording Area / Archive Area	
	Number of cameras	16	9
	Menu language	English / French / German / Spanish	
	Clock setup	Day / Month / Year / Hour / Minute / Second	
Search Mode		Time/Date Search, Alarm Search, Alarm Thumbnail Search, Archive Area Search, Motion detection Search	
Video	Signal format	PAL standard (Colour) / CCIR standard (B/W) auto select, 625 lines, 50 IPS	
	Video input	VBS / VS 1.0 V (p-p) 75 Ω BNC x 16	VBS / VS 1.0 V (p-p) 75 Ω BNC x 9
	Video output	BNC x 16	BNC x 9
	Main monitor output	VS 1.0 V (p-p) 75 Ω BNC x 1	
	Monitor 2 output	VBS / VS 1.0 V (p-p) 75 Ω BNC x 1	
Audio	Audio input	-8 dBs 27 kΩ unbalanced RCA x 1	
	Audio output	-8 dBs 600 Ω unbalanced RCA x 1	
	Microphone input	-60 dBs 10 kΩ unbalanced 3.5 mm mini jack x 1	
Front AV	Video output	1.0 V (p-p) 75 Ω unbalanced RCA x 1	
	Audio output	-8 dBs 600 Ω unbalanced RCA x 1	
Interface	CompactFlash slot	CF type 2	
Control signal	LAN	10BASE-T / 100BASE-TX, RJ-45 x 1 Compatible protocol: UDP, TCP/IP, HTTP server	
	RS-485	RJ-11 x 2, (With a termination switch)	
	USB	USB1.1 Series terminal x 2 (Front x 1, Rear x 1)	
	Alarm input	No-volt contacts (100ms or more) x 16	No-volt contacts (100ms or more) x 9
	Sensor alarm output	Open collector, Low level active (Max. 25 mA) x 16	Open collector, Low level active (Max. 25 mA) x 9
	Remote control input	Two-wire voltage control x 2	
	Clock set input	No-volt contacts (100ms or more) x 1	
	Clock set output	Normal 5 V Low level active x 1	
	Alarm output	Active low, Open collector Max. 500 mA x 1	
	Alarm reset	No-volt contacts (100ms or more) x 1	
	Warning output	Normal DC 5 V Low level active x 1	
	Disk full output	Normal DC 5 V Low level active x 1	
	Alarm full output	Normal DC 5 V Low level active x 1	
	Series input	Normal DC 5 V Low level active x 1	
	Series output	Normal DC 5 V Low level active x 1	
	External timer input	No-volt contacts (1 second or more) x 1	
	NON Rec output	Normal DC 5 V Low level active x 1	
Electrical	Power source	120 V to 240 V AC, 50 / 60 Hz	
	Power consumption	600 mA	
	Operating conditions	Temperature: 5°C to 40°C [41°F to 104°F], Humidity: 80% or less	
Physical	Dimensions	420(W) x 96(H) x 365(D) mm [16.54(W) x 3.78(H) x 14.37(D) in]	
	Weight (Approx.)	6.3 kg [13.9 lbs.] (with one HDD unit)	

NOTE: Specifications subject to change without notice

Warnings regarding HDDs
- Do not attempt to install or replace a HDD on your own. You cannot use these HDDs on PCs.
- The unit may be damaged if it is exposed to an impact or vibration, or the power plug is disconnected during operation.
- Sanyo will not be held liable for any data loss due to an HDD error or a failure during recording.

* "Microsoft", "Internet Explorer" and "Windows" are registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
* All other company and product names are registered trademarks and/or trademarks of their respective owners.

Horizontal resolution 520 TV lines of compatible devices

Camera

Standard
1/3" Colour CCD DSP High-resolution Camera
VCC-6585P
(12 V DC / 24 V AC dual type)

1/3" Colour CCD DSP High-resolution Camera
VCC-5885P
(12 V DC / 24 V AC dual type)

Line-operate
1/3" Colour CCD DSP High-resolution Camera
VCC-6580P
(220 to 230V AC type)

Day/Night
1/3" CCD DSP High-resolution Day/Night Camera (Colour + B/W)
VCC-4592P DAY NIGHT (12V DC type)
VCC-4594P DAY NIGHT (24V AC type)

Pan Tilt Zoom
1/4" Colour CCD DSP High-resolution Speed Dome Camera
VCC-9000P (24 V AC type)

1/4" Colour CCD DSP High-resolution Day/Night Speed Dome Camera (Colour + B/W)
VCC-9100P DAY NIGHT
(24 V AC type)

1/4" Colour CCD DSP High-resolution Speed Dome Camera
VCC-9300P (24 V AC type)

1/4" Colour CCD DSP High-resolution Day/Night Speed Dome Camera (Colour + B/W)
VCC-9400P DAY NIGHT
(24 V AC type)

Zoom
1/4" Colour CCD DSP High-resolution Auto Focus Zoom Camera
VCC-ZM300PA (12 V DC / 24 V AC dual type)

1/4" Colour CCD DSP High-resolution Day/Night Auto Focus Zoom Camera (Colour + B/W)
VCC-ZM400P DAY NIGHT
(12 V DC / 24 V AC dual type)

Vandal Resistant Dome Camera
1/4" Colour CCD DSP High-resolution Day/Night Vandal Resistant Dome Camera (Colour + B/W)
VDC-D1185VP DAY NIGHT
(12 V DC / 24 V AC dual type)

1/4" Colour CCD DSP High-resolution Day/Night Vandal Resistant Dome Camera (Colour + B/W)
VDC-D2185VP DAY NIGHT
(12 V DC / 24 V AC dual type)

Weatherproof
1/4" Colour CCD High-resolution Weatherproof Day/Night Auto Focus Zoom Camera (Colour + B/W)
VCC-XZ400P DAY NIGHT
(12 V DC / 24 V AC dual type)

Recorder

1ch Digital Video Recorder	**DSR-300P**
6ch Digital Video Recorder	**DSR-3506P**
9ch Digital Video Recorder	**DSR-5009P** New
16ch Digital Video Recorder	**DSR-5016P** New

Monitor

15" High-resolution Colour Video Monitor
VMC-8415FP

15" High-resolution Colour Video Monitor
VMC-8615FP

19" High-resolution Colour Video Monitor
VMC-8619PA

SSP compatible devices

SSP System Unit

SSP System Controller
VSP-9000

SSP Signal Converter
VSP-CB10

SSP Signal Receiver
VSP-RV200

Recorder

1ch Digital Video Recorder	**DSR-M810P**
4ch Digital Video Recorder	**DSR-M814P**
1ch Digital Video Recorder *The optional VZU-COM300 communication board is required	**DSR-300P**
6ch Digital Video Recorder	**DSR-3506P**
9ch Digital Video Recorder	**DSR-5009P** New
16ch Digital Video Recorder	**DSR-5016P** New

Camera

1/4" Colour CCD DSP High-resolution Speed Dome Camera
VCC-9000P

1/4" Colour CCD DSP High-resolution Day/Night Speed Dome Camera (Colour + B/W)
VCC-9100P DAY NIGHT

1/4" Colour CCD DSP High-resolution Speed Dome Camera (Colour + B/W)
VCC-9300P

1/4" Colour CCD DSP High-resolution Day/Night Speed Dome Camera (Colour + B/W)
VCC-9400P DAY NIGHT

1/4" Colour CCD DSP High-resolution Auto Focus Zoom Camera
VCC-ZM300PA

1/4" Colour CCD DSP High-resolution Day/Night Auto Focus Zoom Camera (Colour + B/W)
VCC-ZM400P DAY NIGHT

1/4" Colour CCD High-resolution Weatherproof Day/Night Auto Focus Zoom Camera (Colour + B/W)
VCC-XZ400P DAY NIGHT

***Caution:** Please consult the instruction manual to ensure safe and proper operation of the product.

DI Company of SANYO Electric Co., Ltd. obtained Quality Management System ISO9001 and Environmental Management System ISO14001 certifications.

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